

REMARKS/ARGUMENTS

Claims 21-22 are added.

Support for Claim 21 is found at page 1, lines 22-25, page 5, lines 21-22 and at Example 2 as shown below.

Materials	Feed rate	Alcohol-based solvent content	EVAc content	Ratio of solvent to EVAc
45% EVAC/alcohol	1300 kg/h	715 kg/h	585 kg/h	$585/(715+85+1100)$ $= 325\%$ alcohol/EVAc
15% NaOH/alcohol	100 kg/h	85 kg/h		
100% methanol vapor	1100 kg/h	1100 kg/h		

Support for Claim 22 is found at page 2, line 32.

No new matter is added by the amendment.

The rejection of Claims 1-3, 6 and 8-10 under 35 U.S.C. §103(a) over Hart (US 4,377,621) in combination with Hoyt (US 3,985,719) and with Moritani (US 5,744,547), Moritani (US 6,288,165 B1) or Takahashi (US 4,611,029) is respectfully traversed.

The present invention is directed to a method for producing a saponified ethylene-vinyl acetate copolymer, which comprises saponifying an ethylene-vinyl acetate copolymer in an alcohol-based solvent in the presence of an alkali catalyst until its saponification degree is at least 98 mol%, wherein from 100 ppm to 15,000 ppm of water (based on the ethylene-vinyl acetate copolymer) is added to the alcohol-based solvent.

The fact that the inventors have achieved a degree of saponification of 98 mol%, in the presence of water, is quite remarkable as the acetic acid ester produced during the reaction deactivates the alkali catalyst (see page 1, lines 16-29). This deactivation cannot be overcome by simply adjusting temperature of the reaction or the reaction time.

The Office has maintained that saponification/hydrolysis as high as 99 mol% in combination with water contents between 100 and 3400 ppm is disclosed by Hoyt (col. 9,

lines 41-55). However, Hoyt discloses, at a water content of 320 to 3400 ppm,  $25 \pm 1\%$  (line 48),  $32 \pm 2\%$  (line 54),  $12.5 \pm$  (line 58) and  $12.5 \pm 2\%$  (line 63) residual vinyl acetate content. Therefore, the highest saponification degree disclosed by the reference at col. 9, lines 41-55 is only 89.5%.

A higher saponification degree is disclosed by other cited references, but this result is obtained in the absence of water (see for e.g. Hoyt at col. 18, line 52, Takahashi at col. 4, lines 21-23 and Moritani at col. 10, lines 51-54). However, this is not in accordance with the present invention.

The Office further maintains that even if none of the cited references disclose requisite degree of saponification, it would have been obvious to the skilled artisan to adjust the degree of saponification by adjusting process parameters such as water content, alcohol content, catalyst content, reaction time, etc. as disclosed by Hart (see col. 5, lines 22-28) and Hoyt (see col. 8, line 62 – col. 9, line 4). However, Hart specifically discloses that “increasing amounts of water decrease the degree of hydrolysis” (see col. 5, lines 27-28), and Hoyt does not reach 98% saponification or teach how to do so. Thus, Applicants submit that it was not obvious to obtain a degree of saponification that is higher than 98 mol% when the water content is from 100 to 15,000 ppm, as claimed. For example, Hoyt clearly shows that in the absence of water, a 97.61% degree of saponification was achieved. However, when 1000 ppm of water is added, which is in accordance with the present invention, the degree of saponification precipitously falls to 87.07% (see for example, Tables 2 and 3 at col. 17 and 18 in Hoyt). Clearly, both Hart and Hoyt teach away from the present invention.

Applicants submit that their specification Examples further constitute a demonstration of superior results. Whereas previous systems did not realize a saponification degree of at least 98 mol% in the presence of water during reaction, the present invention conclusively demonstrates that such results are indeed obtainable. Furthermore, the visual appearance of

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the EVOH molded product is improved by the present invention (see page 1, lines 34-36), demonstrating additional superior results.

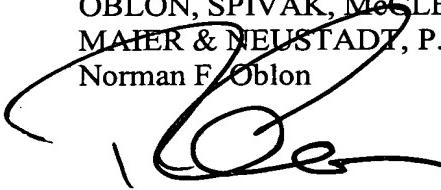
In view of the foregoing remarks, withdrawal of the rejection is requested.

In the event that the Office continues to maintain the rejection, Applicants submit that the limitation presented in Claim 21, would specifically prohibit the cited references from achieving the saponification degree of at least 98 mol% as claimed in the present invention.

Applicants submit that the application is now in condition for allowance. Early notification of such allowance is earnestly solicited.

Respectfully submitted,

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